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Vol. 71 No. 6 Issue No. 4218 101-122

February 7th, 1959

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SYMPOSIUM

Clinical Problems in Everyday Practice

J. K. Bateman: Joan O. Joshua: D. G. Lewis: J. Marshall: G. R. Robbins: W. B. Singleton: John Stratton: W. M. Wadman Taylor: C. F. Woodrow

Fractured Sesamoids in the Greyhound

BY

J. K. BATEMAN
Potters Bar

A NOT uncommon fracture in greyhounds is that of the volar sesamoids. These lie in the deep flexor tendons and are 8 in number in each foot. Often a greyhound may arrive ready to start training and be found to have 1 fractured sesamoid, or even 2. It is not known how these get broken but it is of interest to note that they are more commonly broken on the right fore foot in the adult and that it is almost invariably No. 2 and No. 7 which get broken. Each sesamoid is roughly pyramidal in shape and the fracture is transverse, dividing the small bone into 2 roughly equal parts. So long as the parts remain in the tendon (see No. 2 in Fig. 1), and lie vertical, they do not appear to cause trouble. Sooner or later the fragments move out of the line of the tendon towards the interosseous space (see No. 7 in Fig. 1) and from that time the greyhound will run well but finish lame after a race or trial. The remedy is surgical removal. A vertical incision is made over the sesamoid and slightly towards the middle of the foot. The superficial flexor is exposed and held towards the sound fellow sesamoid. By means of a probe or director the upper fragment is palpated then, by careful vertical incisions, the bone is gently freed from the tendon, care being taken not to cut transversely at any time. It is very tenacious and is finally held by a pair of very fine rat-toothed forceps and cut away. The lower part is not so tenacious and presents less difficulty. Removal is always successful from a racing point of view, but the condition is one that is not often noticed.

METACARPUS OF GREYHOUND

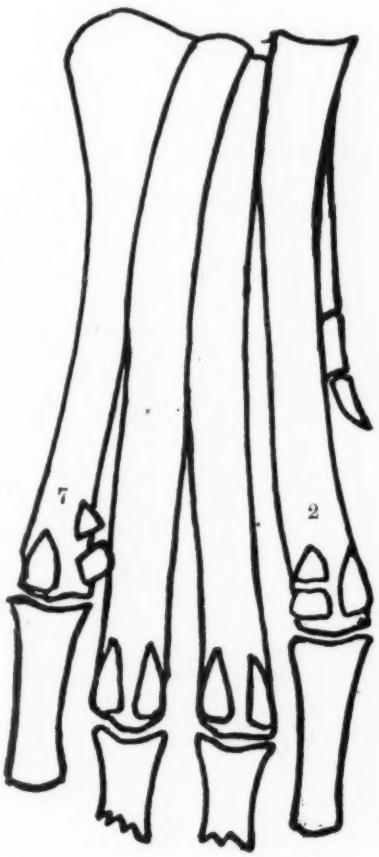


FIG. 1.—Diagram showing (1) fracture of No. 2 volar sesamoid and (2) fracture and displacement of No. 7 volar sesamoid.

The Use of Biotin in Certain Skin Diseases of the Cat

BY

JOAN O. JOSHUA

Finchley

INTEREST in the use of biotin for the treatment of certain non-parasitic skin diseases of the cat, notably of the type described as miliary eczema, was aroused by the favourable response that some feline patients showed to the administration of two proprietary liver extracts.* The only feature peculiar to these liver extracts appeared to be that each was reputed to contain a high concentration of so-called vitamin H, biotin. Experimentally, deficiency of biotin leads to dermatitis in the rat, hence there seemed to be some rational basis for the use of this substance. In view of the fact that it is difficult to get all cats to take these proprietary powders and, furthermore, that the quantities taken may be insufficient for therapeutic purposes, it was felt that, if a preparation of biotin which could be administered parenterally were available, some advance might be made in treating this type of case.

In this practice for some months a solution of biotin has been used in the treatment of non-parasitic skin conditions by intramuscular injection. Various strengths have been used, namely, 20, 50 and 100 mcg. in 1 c.c. Dosage has varied according to the severity of the case, initially in some cases being twice weekly, but now a more or less standardised procedure of giving 100 mcg. once weekly has been adopted. A further point in favour of administering biotin parenterally is that some cats are possibly unable to utilise some of the vitamin factors which may be present in the food and yet not absorbed. It was felt that given by injection the substance was bound to have its maximum effect. An accurate record of the number of cases treated so far is not available but the approximate number must lie between 25 and 30. Results have been interesting. Cases have varied in severity from the cat which has shown pruritus but relatively little in the way of visible or detectable lesions to those with severe lesions of varying types, either the papules along the dorsum, so familiar, or the moist oozing plaques of an allergic nature in greater or lesser degree.

It is fair to say that all cases have derived some benefit. In all cases the skin condition has improved —by that is meant the tone of the skin itself. The coat has become softer in texture, has acquired a bloom, become more profuse and generally lustrous. In all cases there has been some decrease in pruritus, in many cases complete suppression of irritation. It has been necessary in certain cases to adopt other treatments for the individual lesions, for example washes containing gammexane and sulphur in some cases or cortico-steriod preparations for application to allergic type plaques in others.

A curious and somewhat unexpected feature of the treatment has been what can only be described by the rather loose term of "tonic" effect. In many instances owners have commented very favourably on the improvement in condition in the animal despite the fact that there had been no complaint of generalised ill-health when the cat was presented. It is reported that the cats are improved in appetite, that they are more contented, some of them put on weight, in general the owner has been extremely gratified by the response quite apart from any improvement in the skin condition.

One of the most dramatic cases treated has been that of a cat which has been under treatment by all known methods for 2 years, has been virtually bald throughout that time and covered with various lesions. The owner had refused to allow it out at all and had kept it covered with a linen jacket. Since the initiation of the biotin treatment he has grown what is, superficially at least, a perfect coat and is now free to go out. Admittedly it still has a few small lesions.

There has been a tendency to relapse in some cases after cessation of the injections. This, however, is probably to be expected if the fundamental theory underlying this treatment is correct and that it is an inability on the part of the animal to utilise certain food factors. None-the-less in a condition where the clinician receives far more kicks than ha'pence, it has been noteworthy that during this particular week 2 completely unexpected letters have been received from clients stating how delighted they are with the outcome of this line of treatment.

It must be emphasised that it is not claimed that this is the complete answer to non-parasitic diseases of the cat. None-the-less results have been interesting and promising to some extent, and it is definitely felt that this line of approach is worthy of much fuller investigation. It must be agreed that anything is worth investigating when dealing with this very intractable condition.

Acknowledgments.—I wish to acknowledge the assistance of Messrs. Vitamins Ltd. in this connexion and particularly the assistance and interest of Mr. Makinson, M.R.C.V.S., who has undertaken the investigation necessary to make this product available to me. Messrs. Vitamins Ltd. have provided me with most generous supplies of this material for clinical trial and I wish therefore to express to them my thanks.

Addendum

Since the giving of this communication approximately one year ago, cases have continued to be treated as described above with similar results, thus the total number of cases treated is now much greater.

* Murnil (Bayer Products Ltd.), Protinex (Willington Medicals Ltd.).

Skin Grafts as an Aid to Intestinal Anastomoses

BY

D. G. LEWIS

Rochester

NO credit is claimed for this technique as it is very fully described by Armistead (N.A.V. (1956) Vol. 37, No. II, pp. 968-78) in an article

on experimental surgery. It has been modified to encompass difficulties met in its practical application.

The technique seemed so logical and relatively simple that in view of previous rather miserable results with a variety of other methods it has been adopted ever since with a very high rate of recovery although as yet the opportunities have been relatively few.

In brief the principle is to use a strip of fresh skin virtually as a puncture patch stitched over the junction of the 2 cut ends of bowel.

The use of a " patch " has the following obvious advantages:—

1. There is no difficult inversion of bowel to obtain approximation of serosal layers nor the resultant area of thickening and possible stricture.
2. Bowel leakage and contamination are minimised.
3. The strength of the anastomosis is increased.
4. There is a much earlier recreation of continuity of the intestinal mucosa without any intra-luminal cuffing.

Technique in Detail

Two sites are prepared prior to operation. The normal mid-line site for entry into the abdominal cavity, plus the medial aspect of one thigh which is shaved, scrubbed and cleansed with spirit but not with any of the usual chemical solutions.

The affected area of bowel is brought through the abdominal incision and packed with sterile gauze swabs in the normal way and the strangulated portion removed with bowel clamps set about 1 to 1½ inches back from the cut ends of the stumps. Vessels are ligated as necessary. The stumps are cleansed as far as possible with gauze swabs and saline solution. The sections are opposed and joined with through and through interrupted sutures using 00 chromic catgut and atraumatic intestinal needle. There is no inversion and an attempt is made to approximate the correct bowel layers as accurately as possible. The clamps are still on at this stage and the bowel section is covered with warm swabs and the graft now prepared. This is merely a strip of skin removed from the thigh approximately ¾ inches by 2½ to 3 inches as estimated necessary to wrap around the junction.

It is stripped away from the thigh in full thickness down to the connective tissue layer. The joining edge of the wrapping portion is first attached by its corners to the outside edge of the bowel away from the mesentery. It seems easier then to wrap the skin round the intestine suturing its edges with a stitch on each side on the mesenteric aspect (Fig. 1), and then bringing the free edge up to the original sutures, shortening if necessary and joining to the first edge. Further sutures are inserted round the edge of the graft and its contact with the intestine stretching it slightly as the sutures are inserted. Two sutures are also needed to complete the connexion of the skin ends on the extra mesenteric aspect (Fig. 2). This

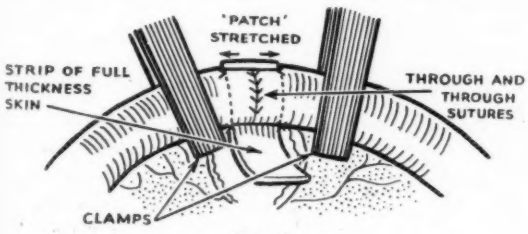


FIG. 1.

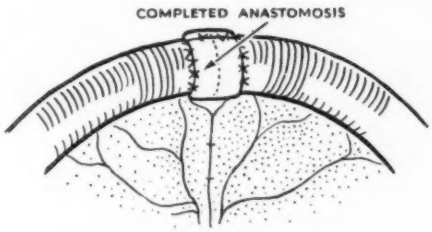


FIG. 2.

procedure is not difficult, the raw side of the skin graft tends to adhere to the serosal surface of the intestine immediately and this adhesion is increased especially when the " patch " is stretched for suturing.

Post-operative treatment is as usual with such cases with special attention to protein and fluid therapy parenterally.

The first case operated on with this procedure was attempted rather with enthusiasm than hope as it was in an extremely advanced state. Its death 72 hours later was not surprising. *Post-mortem* findings, however, were startling. Despite the short period that had elapsed since the operation the graft was firmly adherent and had to be removed from the bowel surface with considerable force. It was this feature that led to the further use of the technique with very successful results.

Armistead followed up his cases with *post-mortem* examinations up to 6 months after operation—microscopical sections showed that the skin section was absorbed almost completely over a relatively short period of time, and there were no cases of formation of epithelial cysts.

A New Approach to the Surgical Treatment of Haematoma in the Dog and Cat

BY

J. MARSHALL

Putney

THE condition known as " haematoma," affecting the ears of both dogs and cats, has been recognised and treated in a great variety of ways over a long number of years.

The majority of the more common methods of treatment, although perhaps quite effective in sealing off the cystic cavity on the pinna, almost invariably result in an ear which is grossly distorted or even crumpled.

The operation which I am now about to describe will in most cases, given proper post-operative care,

succeed, not only in ridding the patient of this most troublesome condition but, at the same time go far towards retaining the normal shape of the ear itself.

The operation procedure is as follows:—

First clip and shave both surfaces of the pinna, and render aseptic in the usual manner.

(a) The Dog

Using morphia followed by local anaesthesia spread subcutaneously around the base of the ear (or general anaesthesia if preferred) make an incision ¾ to 1¼ inches long—according to the size of the ear—vertically and centrally from the lower end of the swelling upwards, through the external surface of the ear. The incision through the cartilage will allow the blood to escape and the ear to resume its normal thickness. The outside surface is chosen, in order that subsequent discharge will not enter the external auditory meatus.

Next, using a Volkmann's spoon, curette the inside of the cavity thoroughly to scarify all callous lining, thus helping to bring about more rapid union of the apposing surfaces.

Equipment Required

(a) One straight, triangular-sectioned needle.
(b) Approximately 1 dozen (more if necessary) pearl or plastic buttons of the size, proportionate to the surfaces to be covered.
(c) A 6 or 8 inch strand of braided nylon for each pair of buttons to be used.
(d) Abscess knife, curette, scissors, dressing forceps and, in case of need, one pair of artery forceps.
(e) Sterile swabs as required.

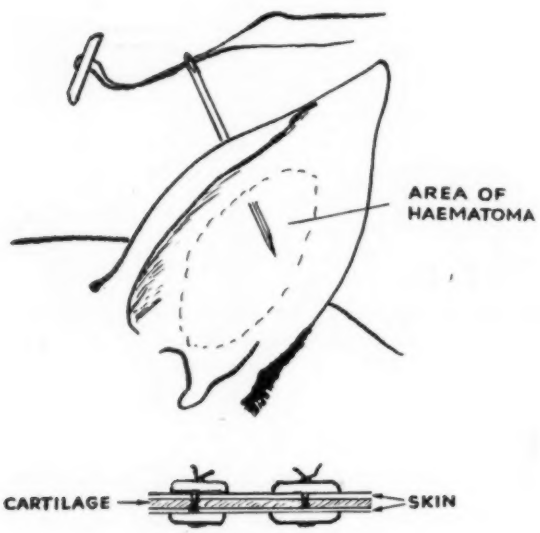


FIG. 1.

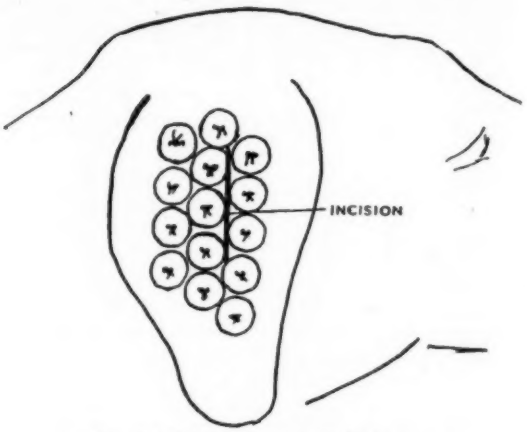


FIG. 2.—External aspect of dog's ear.

Suturing Procedure

1. Thread 1st button and enter one end of the thread through each hole in the rough surface of the button.
2. Next, thread the double end of the thread through the eye of the needle.
3. Then, positioning the buttons in pairs on either side of the incision, and closely adjacent to each other, begin by piercing the ear (see Fig. 1).
4. Pull the thread out, until the button lies flat against the ear; remove needle, and thread on second button, entering the thread from the smooth surface this time, and then tie firmly but not too tightly (over-tightness may lead to pressure necrosis).
5. Now trim off the excess nylon (Fig. 2).

This procedure is repeated on either side of the incision until the entire surface of the haematoma has been covered, the ear being then cleansed and freely swabbed with tincture of iodine.

Except where subsequent bleeding is excessive, bandaging of the ear after operation is not recommended.

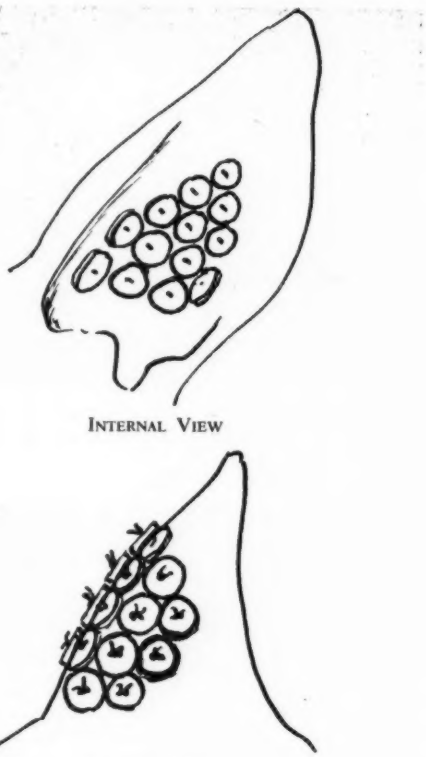
After Treatment

The surgeon should either retain the case until complete, or arrange to see it daily, in order that he may watch for the appearance of any swelling between the buttons, and to re-apply the iodine as before.

(b) The Cat

Owing to the smaller size of the cat's ear, together with its different curvature, the button for choice is the ordinary pearl shirt button, more of them being required (see Fig. 3).

Acknowledgment.—I would like to record my sincere thanks to my assistant Miss Cynthia White, M.R.C.V.S., for the very efficient manner in which she has executed the various diagrams.



INTERNAL VIEW

EXTERNAL VIEW

FIG. 3.—Two aspects of a cat's ear.

The Value of the Mitchell Needle in Small-Animal Practice

BY

G. R. ROBBINS

Royal Veterinary College, London

THE common cause of difficulty in anaesthetic techniques involving multiple or repeated injections is blockage of the needle, also the method becomes clumsy if more than one fluid is used for injection unless special needles are utilised.

Gordh introduced a diaphragm type of needle, but the diaphragm was itself a cause of difficulty and J.V. Mitchell designed a needle which he described in 1952 as being simple, satisfactory and reliable. Since then this needle has been used by a number of veterinary surgeons but its value is not widely appreciated.

The design is simple but ingenious, allowing the needle to be left in place ready for repeated injections, but with the syringe detached.

The needle has its orifice situated in the side about 1 cm. from the point, the needle distal to the orifice being solid. The hub is record fitting, and on it is mounted a metal spring in such a way that it can be pivoted laterally.

The spring bears a rubber pad which presses the skin and vein wall against the orifice of the needle. Injections may be made with the pad in place, which effectively prevents any back-flow directly the pressure ceases. Simply by swinging the spring laterally, pressure of the orifice is relieved and blood can be withdrawn or the needle used for an infusion (Figs. 1 and 2).

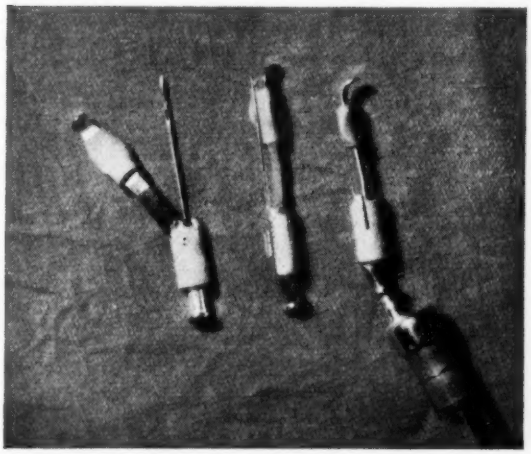


FIG. 1.—Three sizes of the Mitchell needle. The needle on the left has the spring arm pivoted laterally, and the orifice of the needle can be seen.

FIG. 2.—The Mitchell needle in use.

The technique for venepuncture varies little from normal. The needle is attached to the filled syringe with the spring swivelled to one side. Following entry into the vein, resistance to its further progress ceases, but confirmation can be obtained by aspiration of a little blood. The spring is swivelled back into position and a little fluid injected to clear the needle of blood. For induction of anaesthesia in a large dog I make the initial injection before the spring is in place. Before injection of incompatible fluids, the needle should be flushed with sterile

saline. The spring is not moved for further injections.

The needle is used as a routine unless it appears that venepuncture may be difficult. In the last 100 cases for major surgery the needle was used 58 times. Of the remaining 42 occasions, the anaesthetic technique did not call for a repeated injection in 30 cases. On no occasion has access to the vein become obstructed during the course of the operation.

There are disadvantages to the use of the Mitchell needle. I find that there is more haemorrhage on withdrawal than with a standard needle of equivalent size. This is however easily controlled by digital pressure or a light pad. Secondly, it is easy to leave the needle in the vein through forgetfulness. Due to its length it is unwieldy in short-legged breeds.

At *post-mortem* examination of a dog, following the use of the needle for a total of 33 hours in 4 days in the 2 radial veins, no abnormality of the veins could be found macroscopically with the exception of a slight reaction around the site of puncture.

Two standard sizes of needle are available, 18 S.W.G. and 20 S.W.G. (the most useful), but a 24 S.W.G. is manufactured for veterinary work in small-animals. The needles are supplied by Messrs. Vann Bros. Ltd., of 63, Weymouth Street, London, W.1. or by the British Oxygen Gases Ltd., Brentford, Middlesex.

Reference

MITCHELL, J. V. (1952). *Anaesthesia.* **7.** No. 4.

Catheterisation of the Bitch

BY

W. B. SINGLETON

London

THE difficulties of collecting a specimen of urine from the bitch are well known and until fairly recently there was no standard piece of equipment available to facilitate this procedure. Having used the Kuscher's slit tube for some time I have formed the opinion that it is a most useful instrument for this purpose.

The instrument consists of a battery holder, a rheostat switch, a detachable head with illuminating bulb and also a detachable speculum with a slit running down its entire length (Fig. 1).

No anaesthesia is required and the bitch is placed on her back with the hind limbs firmly grasped above the hock and drawn forward. The lubricated speculum is inserted into the vagina with the slit adjacent to the vaginal floor (Fig. 2). The illumination provided enables the urethral opening to be seen with ease and a metal catheter or even a gum elastic catheter can be introduced without difficulty. The urine is collected by pressing gently in the regions of the bladder with the bitch in the supine position or, alternatively, after withdrawing the Kuscher slit tube but retaining the catheter in position, the animal can be returned to its feet when the urine flows freely into a collecting bowl.

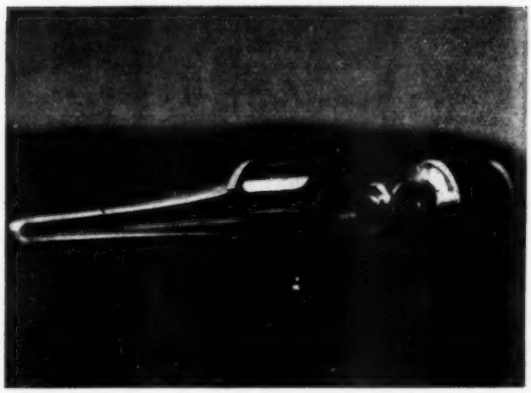


FIG. 1.—Kuscher's slit tube with illuminating bulb. (This will fit the standard battery holder.)

FIG. 2.—Instrument in position and curved metal bitch catheter being introduced.

Tests for the Detection of Glucose in the Urine of the Dog

Clinical use of Test Papers Impregnated With Glucose Oxidase

BY

JOHN STRATTON

Department of Medicine, Royal Veterinary College, London

Introduction

THE author has previously described the use of enzyme test papers for the detection of glucose in urine (Stratton, 1957). At that time no recommendations were made for the use of such tests in routine urine analysis. Investigations into the use of these tests are still in progress, but at this stage one might enlarge upon the work already published.

Use of Tests

The Reagent Strips* have been used more frequently than the Urine Sugar Test Tape† but these remarks apply equally to both products.

When examining urine it has been the custom to apply a test involving the chemical reduction of copper salts, *e.g.* the tests of Benedict or Fehling. This type of test is not specific for glucose. It is therefore necessary to prove that the reducing substance is glucose, by yeast fermentation tests or the use of an enzyme test (Harvey, 1957). The author would suggest that this procedure can be reversed with advantage. No substances have been found in the urine of the dog which interfere with the specificity of the enzyme tests.

First, apply the enzyme test to the urine specimen. If the result is negative one can assume that no significant amount of glucose is present. If the result is positive, estimate the amount of glucose present by using the classical test of Benedict or Harvey's modification of the same test (Harvey, 1957). In the qualitative form Benedict's test gives the clinician a reasonable guide to the amount of glucose present. Many prefer to use the tablet test‡ based on the same principle: if this test is carried out according to the manufacturer's instructions it can be regarded as quantitative in the range of 0 to 2 per cent. which is adequate for clinical purposes. It must be emphasised that the enzyme tests must not be regarded as quantitative tests when applied to the urine of the dog.

Discussion

The test paper impregnated with glucose oxidase is essentially simple to use. No apparatus or source of heat are required and the test can be performed very rapidly.

Wilkinson (1957) states that glycosuria may be due to alimentary hyperglycaemia or to a lowered renal threshold for glucose. Up to the present time the author has not detected these conditions in the dog.

By using the enzyme test in routine urine analysis as a screening test for glycosuria a considerable amount of time is saved and a certain amount of "messy" chemistry is avoided. The introduction of such a simple test as a routine may help the clinician to diagnose more cases of diabetes mellitus. The incidence of diabetes mellitus in the dog is known to be higher than the generally accepted figure of 1 in 1,000. Wilkinson (1957) now gives a figure of 1 in 260.

It is suggested that the test paper impregnated with glucose oxidase should be introduced as a routine screening test for glycosuria in the dog in place of the classical, but non-specific, tests involving the reduction of copper salts.

References

HARVEY, D. G. (1957). *Brit. Vet. J.* **113**. 52.
STRATTON, J. (1957). *Vet. Rec.* **69**. 599.
WILKINSON, J. S. (1957). *Vet. Rev. Annot.* **3**. (ii.) 69.

* "Clinistix" Reagent Strips, Ames Company (London) Limited.
† "Testape" Urine Sugar Test Tape, Eli Lilly and Company Limited.
‡ "Clinitest" Reagent Tablets, Ames Company (London) Limited.

A Simple Electro-Stethoscope

BY
W. M. WADMAN TAYLOR
South Kensington

THE contribution which I am privileged to present to you this evening I have entitled "A Simple Electro-Stethoscope"; this may appear to be a contradiction in terms, for the usual conception of an electro-stethoscope is an elaborate, complicated, and expensive piece of apparatus. The one I am about to describe, however, I consider reasonably simple and it can be purchased for between £5 to £10.

I did not get it with the idea of owning a somewhat spectacular piece of equipment or a new toy to play with, but I hoped it would serve a practical purpose and I think it does this, with one reservation which I will go into later. The use to which I put the stethoscope is that of early warning of heart failure, particularly in cats, under ether anaesthesia. Normally I consider ether a very safe general anaesthetic in cats and collapse is usually preceded by an alteration in respiration. At this stage removal of ether and substitution of O_2+CO_2 with or without artificial respiration usually revives the patient. But I have encountered the occasional cat, especially Siamese, in which the first sign of anything untoward is cessation of breathing; auscultation of the heart reveals that it has stopped and in my experience no amount of stimulants or any other of the usual revivers is successful.

It was with the idea of being able to hear the heart beat throughout the period of anaesthesia without being cluttered up with the ear attachments of a normal stethoscope that I got the electro-stethoscope.

It consists of a simple disc-like microphone similar to the microphone in the ordinary G.P.O. telephone. To the back of this is fastened a length of webbing about 1½ inches wide by 15 to 18 inches long with a weight fixed to each end of it. The microphone is placed over the cat's left chest when it is lying on its side in the normal spay position; the weighted webbing holds it in position. The flex from the microphone is plugged into a socket on the leg of the operating table, this is connected to an amplifier which is slung underneath the table and a lead from this is connected to a loud speaker which hangs on the wall reasonably near the operator.

The heart beat can be heard constantly and any alteration is immediately obvious and suitable emergency measures can be taken when necessary.

The one practical objection to the apparatus seems to be that of feed-back. This is the picking up by the microphone of sound issuing from the loud speaker. When this happens it rapidly becomes a loud scream and the apparatus has to be switched off. I think this could be overcome by someone with a knowledge of radios or acoustics, when the apparatus would be a boon to anyone not fortunate enough to have the services of a qualified anaesthetist.

(*Symposium concluded overleaf*)

Tuberculin Sensitivity in Attested Cattle Vaccinated Against Johne's Disease

BY

C. N. HEBERT, T. M. DOYLE, and A. B. PATERSON

Ministry of Agriculture Veterinary Laboratory, New Haw, Weybridge, Surrey

SUMMARY.—Vaccination of attested cattle with Mycobacterium johnei *in oil raises the level of reactivity to avian and mammalian tuberculin to about 8 times that of the normal attested population. The overall effect is that of an artificially induced source of non-specific sensitisation which increases the difficulty of interpreting the significance of reactions to mammalian tuberculin.*

VACCINATION of cattle against Johne's disease by subcutaneous inoculation of living *Mycobacterium johnei* in oil (Vallée, Rinjard & Vallée, 1926) produces sensitivity to avian tuberculin, the overall effect being to produce artificially a population with a high degree of non-specific sensitivity to mammalian tuberculin. Previous studies in attested herds have indicated the degree of tuberculin reactivity to be expected (Hebert & Paterson, 1955; Paterson & Hebert, 1957) and the present paper compares earlier data with that occurring in attested herds vaccinated against Johne's disease. It is clearly of importance to determine the effect of vaccination on the comparative tuberculin test, and particularly if the number of problem animals are increased.

Methods

1. *Tuberculin Tests.* The single intradermal comparative test (M.A.F., 1942, 1947).

2. *Sampling.* Eighteen suitable herds were selected from those taking part in the Johne Vaccination Field Trial (A.R.C. Trial No. 1, begun 1946). Two tuberculin tests in consecutive years (A and B tests) were extracted from the tuberculin test records of each herd, all tests chosen being between the years 1954 and 1957. A total of 4,139 reactions to avian and mammalian tuberculins was obtained by combining the results of the two tests. This total was assumed to represent the number of animals tested, since no obvious differences were apparent in the analyses of the two tests separately. Herds had been in the Trial for periods of 5 to 10 years, and were situated in various counties as follows: 5 herds from Devon, 2 herds each from Lincolnshire and Gloucestershire, and 1 each from Berkshire, Surrey, Oxfordshire, Wiltshire, Warwickshire, Hereford, Cambridge, Lancashire, and Yorkshire.

3. *Collection of Data.* This was described previously (Hebert & Paterson, 1955). Non-vaccinated animals were not included in the sample, nor were

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Symposium—*Concluded.*

Treatment of Warts and Labial Ulceration

BY

C. E. WOODROW

Knightsbridge

WHEN I received orders from our Secretary a few days ago to take part in this clinical exchange I tried to think of some subject to discuss, but was quite unable to do so in the time. So I thought I might repeat the pattern of a year ago when I gave a prescription for alopecia which has, I understand, proved quite useful to some of you.

The first prescription is one for the non-surgical treatment of warts and it may not be generally known. There is a formulation in the B.P.C. and National Formulary called Pigmentum Podophylli—Podophyllum Paint—which is 25 per cent. Podophyllum resin in liquid paraffin. This is used in the medical field for the treatment of soft venereal granulomata but it is remarkably effective in the treatment of all non-malignant skin growths particularly of warts, melanomas, and even sarcoid growths in young dogs. It is merely painted on once or twice a day—and in a couple of days a soft scab appears which is removed and the process repeated until the removal of the last scab takes it down to skin level. It is quite non-irritant to unbroken skin but must not be used in any position which a dog can lick unless it can be protected by a bandage, as it will most effectively remove the mucous membrane from the tip of the dog's tongue.

The second prescription is for that difficult and offensive condition usually seen in cocker spaniels —ulceration of the labial folds of the lower lips. As you well know this is most intractable to medical treatment and usually calls for surgical resection. As I believe this is accompanied by a fungus or monilia infection and is permanently moist, it calls for a quick drying spirit base fungicide and I think that you will find that an organic mercury compound —thiomersalate (Tincture of Merthiolate) applied conscientiously twice a day will immediately kill the most offensive smell and will eventually clear the condition.

animals with test results indicating the necessity for retesting or removal. Where it was uncertain if an animal had been vaccinated, it was not included in the sample. All animals in the sample were aged from 0 to 8 years old, calves being described as those under 10 months of age. Under the scheme all calves were vaccinated within 30 days of birth and many of them again at 18 months.

Results

1. *Frequency Distribution of Reactions*

Fig. 1 shows the percentage of animals in vaccinated herds exhibiting the various degrees of sensitivity to avian and mammalian tuberculins. The distribution of reactivity is almost normal for both tuberculins, the highest percentage (53.6 per cent.) of reactions being between 6 and 12 mm. for avian, with a peak of 8.8 per cent. at 8 mm., while the mammalian shows a steeper curve with a peak closer to the ordinate; 62.7 per cent. of reactions lie between 2 and 8 mm. with a peak of 10.6 per cent. at 6 mm. The picture is quite unlike that of the unvaccinated attested population which shows only the right-hand side of a normal distribution curve with about 70 to 80 per cent. of animals exhibiting reactions of 1 mm. or less.

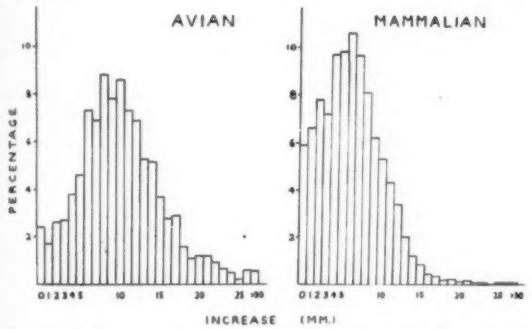

FIG. 1.—Percentage of vaccinated animals giving reactions of 0, 1, 2, etc., mm. to avian and mammalian tuberculins.

If a reaction of 2 mm. increase or more be considered positive, the percentage of reactors in unvaccinated attested herds has previously been shown to be 30 per cent. to avian and 17 per cent. to mammalian tuberculin. In vaccinated herds the percentage of animals reacting is markedly increased to 96 per cent. to avian and 87.5 per cent. to mammalian tuberculin. The mean level of reactivity of all vaccinates (Table I) is 10.18 mm. to avian and 6.08 mm. to mammalian, in contrast with the figures of 1.7 mm. and 0.9 mm. respectively, in attested unvaccinated cattle in either Cumberland or Berkshire.

2. *Mean Reactions of Age Groups*

Fig. 2 shows that the general level of reactivity at all ages to tuberculin in vaccinated animals (two upper curves) is several times greater than in the general population of attested cattle (two lower curves). Reactivity to both tuberculins is high in calves after vaccination, being 12.2 mm. to avian and 7.5 mm. to mammalian tuberculin. There is a mean drop of approximately 2 mm. at 1 year old, and after 2 years there is a gradual decline in avian sensitivity to 8 mm. at 7 and 8 years of age. The mean reactivity to mammalian tuberculin remains around 5.5 mm. from 2 years of age onwards. The difference between the mean reactions to the two types of tuberculin decreases with age, but is always highly significant ($P = 0.001$).

TABLE I

MEAN REACTIONS OF JOHNE VACCINATED HERDS TO AVIAN AND MAMMALIAN TUBERCULINS

Herd number	Test	Calves (under 10 months) Number	Calves Mean Avian	Calves Mean Mamm.	Adults (10 months to 8 years) Number	Adults Mean Avian	Adults Mean Mamm.
1	A	8	9·4	4·8	72	10·8	4·9
	B	11	16·5	9·0	70	11·9	7·0
2	A	15	7·3	6·7	65	9·5	5·6
	B	11	7·1	5·5	60	8·0	5·1
3	A	33	10·7	6·5	141	10·5	5·8
	B	43	17·5	11·3	171	12·6	6·7
4	A	25	5·0	1·8	66	10·6	4·4
	B	13	9·2	4·4	63	8·6	5·4
5	A	2	20·0	13·5	4	8·0	4·5
	B	0	—	—	5	8·4	5·0
6	A	22	5·5	4·1	71	4·4	2·3
	B	11	5·3	3·4	88	3·8	2·2
7	A	12	10·9	5·7	102	7·4	2·5
	B	16	9·5	6·1	82	8·1	3·4
8	A	40	16·7	13·1	95	9·8	6·4
	B	39	10·4	7·6	85	8·8	5·9
9	A	5	15·4	11·6	36	9·9	6·2
	B	11	11·0	7·4	28	8·5	4·9
10	A	56	11·4	4·6	64	7·8	5·7
	B	49	10·9	5·9	81	6·7	4·1
11	A	22	11·5	6·8	91	10·9	8·4
	B	33	14·8	7·8	129	8·8	4·9
12	A	17	13·1	7·0	88	13·2	8·4
	B	7	14·1	9·3	76	11·5	7·2
13	A	56	12·4	8·4	122	9·2	6·6
	B	50	13·5	7·4	113	10·1	5·6
14	A	9	9·4	7·3	88	11·7	6·4
	B	11	15·5	10·0	95	13·2	7·5
15	A	47	8·3	6·9	148	7·3	5·5
	B	31	7·6	6·8	163	7·4	6·2
16	A	15	13·7	8·7	74	11·9	7·4
	B	21	14·2	9·0	77	11·2	6·1
17	A	44	14·2	5·5	109	11·4	4·2
	B	43	12·7	5·4	68	8·8	4·8
18	A	46	18·1	11·6	170	10·0	6·5
	B	48	15·1	9·9	157	9·9	6·2
Total Reaction—							
A tests		474	5,645	3,452	1,606	15,648	9,259
B tests		448	5,641	3,415	1,611	15,195	9,058
		922	11,286	6,867	3,217	30,843	18,317

Mean Reactions of all Animals—	Number of animals	Avian	Mammalian
A tests ...	2,080	10·24	6·11
B tests ...	2,059	10·12	6·06
Total ...	4,139	10·18	6 08

3. *Reactivity of Animals with Skin Tuberculosis*

Twenty-two animals in the sample (0.53 per cent.) were described as being affected with skin tuberculosis. Unlike unvaccinated animals in the general

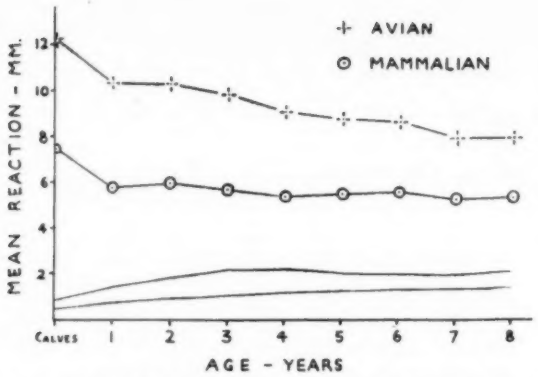

FIG. 2.—Reactivity of vaccinated animals at different ages to avian and mammalian tuberculins (upper curves). The two lower curves show the reactivity of an unvaccinated attested population.

attested population which show a slight mammalian excess, vaccinated animals with skin tuberculosis exhibit the same reactivity as vaccinates without skin tuberculosis, the respective mean levels being 10.2 mm. and 10.3 mm. to avian, and 6.1 mm. and 6.1 mm. to mammalian tuberculin. The mean level in the unvaccinated attested population is 5.0 mm. to avian and 6.5 mm. to mammalian tuberculin. The level of reactivity appears to be higher in younger animals, but the number of reactions is too small for construction of either a reliable age-incidence curve, or one showing mean reactions of age groups.

4. *Comparison of Avian and Mammalian Reactions*

Table II shows the relative reactions to avian and mammalian tuberculins expressed as a percentage of the total number of animals. The boxed area shows the animals liable to cause uncertainty in interpretation, *i.e.* those giving reactions of 3 mm. or over to avian tuberculin and equal or greater reactions to mammalian tuberculin. In the unvaccinated population of attested cattle only 3 per cent. of reactions are in the boxed area, but in vaccinated cattle the figure is 14.4 per cent., an almost 5-fold increase.

These epidemiological studies have not been concerned with the official recommendations on interpretation of the test, but it is of interest that 1.08 per cent. of all reactions were marked as requiring a retest, while in the previous Cumberland sample, *i.e.* in the general attested population, 0.23 per cent. of cattle required retesting. In the "A" series of tests 5 adults and 2 calves were marked for retest and 3 animals in one herd were removed as reactors. In the "B" test for this herd, 7 calves were marked for retest. The total number of animals for retest in the "B" series was 38—21 adults and 17 calves.

Discussion

Vaccination of tuberculosis-free cattle with living *M. johnei* in oil produces a degree of sensitivity to avian tuberculin about 8 times that normally encountered in attested populations, and increases the proportion of animals giving non-specific reactions to mammalian tuberculin. The high initial sensitivity in vaccinated animals destroys the usual increase in sensitivity which occurs up to 3 years of age, but the decline in avian sensitivity up to the age of 8 years is similar to that in natural sensitivity although at a much higher level.

The overall effect of vaccination is the artificial production of a population with a high degree of non-specific reactivity to mammalian tuberculin, and since naturally occurring sensitising agents cause difficulties of interpretation, one would expect these difficulties to be increased in vaccinated cattle. This indeed appears to be the case since the number of animals giving equal reactions to both tuberculins or greater to mammalian is increased from 3 per cent. in attested catle to about 15 per cent. in vaccinated attested cattle. Vaccination itself, apart from the question of detection of vaccinates infected with bovine tuberculosis, therefore increases the number of inconclusive reactors.

The data presented here give no information on the difficulty or otherwise of detecting the tuberculous animal in a vaccinated group. All the herds used in the vaccination trial were carefully selected for freedom from tuberculosis, only those with good histories being accepted, and serious difficulties do not appear

TABLE II

COMPARISON OF AVIAN AND MAMMALIAN REACTIONS. (PERCENTAGE OF ALL REACTIONS)

	Mammalian increase = 0	1	2	3	4	5	6	7	8	9	10	11	12	>12	>20
Avian = more than 2 mm. greater than Mamm. ...	2·89	4·03	4·80	4·82	6·46	6·46	6·24	5·64	4·70	3·71	2·70	2·60	1·86	2·65	0·15
Avian = 2 mm. greater than Mamm.	0·51	0·51	0·70	0·70	1·37	1·01	1·49	1·57	1·06	0·84	0·82	0·55	0·58	0·41	0·096
Avian = 1 mm. greater than Mamm.	0·34	0·75	0·84	0·70	0·65	1·16	1·04	0·84	0·55	0·48	0·51	0·31	0·15	0·31	0·072
Avian = Mamm. ...	2·10	1·23	1·25	0·84	0·96	0·94	1·45	0·94	1·16	0·80	0·92	0·60	0·58	0·99	0·072
Mamm. = 1 mm. greater than Avian	—	0·17	0·17	0·05	0·12	0·19	0·19	0·36	0·36	0·24	0·19	0·17	0·05	0·34	0·048
Mamm. = 2 mm. greater than Avian	—	—	0·072	0	0·048	0·024	0·12	0·12	0·27	0·096	0·19	0	0·096	0·29	0
Mamm. = more than 2 mm. greater than Avian	—	—	—	0	0	0	0·048	0·048	0·072	0·048	0·048	0·024	0·072	0·19	0·024

14·4 per cent. of reactions are in boxed area.

to have arisen in interpretation. Only 3 cases of bovine tuberculosis have been encountered in 75 vaccinated herds in 12 years (average over the period) and these were characterised by severe mammalian reactions. Use of vaccine is clearly contraindicated in non-attested herds. Experimental evidence is limited, but the information obtained with cattle (Ritchie, Robertson & Muir, 1952) and goats (Doyle, 1953) suggests that except in very recent infections with bovine tuberculosis and with a high reactivity to mammalian tuberculin it would prove difficult to detect tuberculosis in vaccinated cattle.

From the experimental point of view a solution is difficult and seems unlikely to be obtained by modification of tuberculin or use of different tuberculin tests. It may prove possible to produce a vaccine without sensitising properties (see, for example, Weiss & Dubos, 1955, 1956; and Weiss, 1957) but its development would appear to require solution of the classic problem of the relationship of allergy and immunity in mycobacterial infections. The production of infections with *M. johnei* in laboratory animals should make possible the development of various experimental vaccines of this type worthy of field trial (Lominski, Cameron & Roberts, 1956; Rankin, 1958).

At present tuberculosis eradication must take priority over Johne's disease, particularly from the public health point of view, and the present findings suggest that a price would have to be paid for widespread vaccination in loss of precision of the tuberculin test. It remains to be seen if present experience with Johne's disease vaccine will permit its general application when complete attestation is accomplished, and if new facts and circumstances will make its use compatible with maintenance of freedom from cattle tuberculosis.

References

DOYLE, T. M. (1953). *Brit. Vet. J.* **109.** 275.

HEBERT, C. N., & PATERSON, A. B. (1955). *Vet. Rec.* **67.** 1143.

LOMINSKI, I. W., CAMERON, J., & ROBERTS, G. B. S. (1956). *J. Path. & Bact.* **71.** 211.

M.A.F. Statement (1942). *Vet. Rec.* **54.** 191.

——— (1947). *Ibid.* **59.** 261.

PATERSON, A. B., & HEBERT, C. N. (1957). *Ibid.* **69.** 389.

RANKIN, J. DEANS (1958). *J. comp. Path.* **68.** 331.

RITCHIE, J. N., ROBERTSON, A., & MUIR, R. O. (1952). *State Vet. J., London.* **7.** 28.

VALLEE, H., RINJARD, P., & VALLEE, M. (1926). *Rev. gén. méd. vet.* **43.** 777.

WEISS, D. W. (1957). Thesis, University of Oxford.

———, & DUBOS, R. J. (1955). *J. exp. Med.* **101.** 313.

———, & ——— (1956). *Ibid.* **103.** 73.

NEW DIRECTOR OF DAIRYING RESEARCH INSTITUTE

Professor Ronald Gilbert Baskett has been appointed Director of the National Institute for Research in Dairying, University of Reading, from August 1st. He is at present Professor of Agricultural Chemistry, Queen's University of Belfast, and head of the chemical and animal nutrition division of the Ministry of Agriculture for Northern Ireland. He was born in 1901, and educated at Chelmsford and at University College, Reading. In his new post he will succeed Prof. H. D. Kay, who was Director of the Institute from 1933 until September, 1958.

The Toxicity of Hexachloroethane

BY

W. T. HARROW

Imperial Chemical Industries Limited, Wilmslow, Cheshire

HEXACHLOROETHANE has a long history of use in therapeutics. It was first tested by Maurice Hall, the renowned parasitologist of the United States Department of Agriculture, in 1925, in dogs infested with hookworms, but proved to be useless. Soon after, however, German and Bavarian workers found it active against the adult liver fluke (*Fasciola hepatica*), and the drug became widely and successfully used in Europe from 1926 onwards as a component of a number of proprietary liver fluke remedies.

Before hexachloroethane appeared, the only satisfactory remedy for the disease was male fern extract (*Extractum filicis liquidum*), but this is expensive compared with the chlorinated hydrocarbons. Moreover, male fern extracts are not standardisable as to composition, and consequently they vary in toxicity. Hexachloroethane, being of constantly controlled chemical composition, is more suitable for therapeutic use.

In about 1942 hexachloroethane was first used by the United States Department of Agriculture, and a number of papers were published over the following 5 years describing its effectiveness in cattle and suggesting doses or methods of administration (Olsen, 1943, 1944, 1947). At the end of this period, Lapage and others (1947) described its use in cattle in Britain, and the drug was made available commercially.

Because of the limitations of other agents, particularly in cattle, hexachloroethane gained rapidly in popularity, and its value as a fasciolicide is now well established.

However, although hexachloroethane is less toxic than carbon tetrachloride, it is not completely innocuous, and some toxic effects have been associated with its use. The incidence of toxicity is, for obvious reasons, difficult to assess, but actual fatalities probably occur at the rate of one in every 20,000 cattle dosed and at about half this rate in sheep. Non-fatal cases, however, occur rather more frequently.

Toxicity does not appear to be related to dosage, and while Russian workers (Plotnikov & Sokolov, 1947) recommend as much as 240 g. as a single dose for a 300-kg. animal, doses as low as 30 g. have caused symptoms of toxicity in similar beasts. The dosage generally recommended for cattle in Britain is now 15 g. for every 6 months of age, with a maximum of 60 g. for adult cattle. This, of course, applies to animals of normal growth and condition, and is reduced in the case of undersized or weak animals. In the latter case it is usually considered advisable to divide the dose into two parts, the second being given 48 hours after the first.

The symptoms of hexachloroethane poisoning are in many ways similar to those of hypocalcaemia, with lowered temperature, coldness of the extremities and dullness which may develop into coma. There may

be signs of abdominal pain, and blood-stained diarrhoea. *Post-mortem* findings are mainly those of acute abomaso-enteritis, in which there is severe inflammation of the abomasum and upper part of the small intestine. There is usually considerable oedema of the mucous membrane which may obliterate the folds in the abomasum, with quantities of blood-stained serous exudate. There may be some hyperaemia of the liver and kidneys, and in cases of overdosage, some centri-lobular necrosis in the liver. In deaths due to sensitivity, however, changes in these latter organs are not often noted. Symptomatic treatment has shown that a rapid response is obtained to the intravenous injection of calcium borogluconate.

Hexachloroethane poisoning occurs in apparent outbreaks, several animals being affected in one herd at the same time. It is probably for this reason that the condition attracts more attention than its low incidence would otherwise warrant.

A study of these "outbreaks" strongly suggests that susceptibility to the drug exists under various but definite circumstances, *i.e.* unusually high fluke infestation with concomitant extensive liver damage, or the feeding of certain diets. It has also been suggested that susceptibility is increased in some geographical localities.

An increased susceptibility to hexachloroethane as the result of extensive liver damage may perhaps be expected, since, because of its action on the fluke in the bile duct, the drug must almost certainly pass through the liver before its excretion. Interference with this passage is thus likely to result in the building up of a toxic blood level.

Diets which appear to produce sensitivity are those which contain relatively large amounts of protein, such as cattle cake and high-protein dried grass. Other foods which have been associated with hexachloroethane poisoning are the roots, such as mangolds, fodder beet, and turnips, and also sugar beet tops and kale.

It is noteworthy that all of these, when given either in excessive quantities, or to susceptible animals such as parturient cows, may produce a syndrome clinically very similar to hypocalcaemia, and a *post-mortem* picture like that seen in hexachloroethane poisoning. At least one geographical locality in which susceptibility to the drug has been noted is one in which the incidence of "milk fever" is high. Further, as has been mentioned earlier, calcium salts appear to have an antidotal effect in the treatment of hexachloroethane poisoning.

In one "outbreak" of hexachloroethane poisoning, 100 yearling cattle had been fed on chopped roots and straw and another 100 on a ration containing a high-protein dried grass. Two deaths and half a dozen cases of illness occurred in the high-protein fed group, while no ill effects were seen in the other, following a single standard dose of the drug. In this case roots did not appear to predispose to toxicity, but heavy feeding, particularly with turnips, has been implicated in others.

There is, therefore, support for the opinion that susceptibility to hexachloroethane is in some way connected with blood calcium imbalance. Poisoning has yet to be recorded in animals on a natural diet when the drug is given in the prescribed doses. To avoid accidents, feeding-stuffs other than grass or grass hay should evidently be withheld for several days before administration, and parturient or heavily lactating cows should not be dosed. It is advisable to test dose a few representative animals 48 hours before the main flock or herd.

The Toxicity of Hexachloroethane—*Concluded.*

Clinical Note

Bovine Siamese Twins

Case Report

D. M. Berry
*St. Ann, Jamaica**

A 6-year-old cross-bred Jersey Indian cow was seen to be calving at 8 a.m. By 12 o'clock noon the forelegs, head, and shoulders of the calf were protruding, the calf looked normal but traction did not result in delivery.

When called at 2 p.m. the calf was looking healthy with forelegs, head, and shoulders protruding and it was breathing regularly. On examination, however, the calf was found to be attached from the navel to the tail by continuous flesh with a Siamese twin.

It was not possible to return the partly delivered twin to the uterus to enable effective embryotomy to take place and so this twin was cut in two through the thorax.

On further examination, the twins were felt to be joined by bony fusion of the pelvis (Fig. 1), the whole forming a mass too large for normal delivery and so caesarean section was performed.

Basal narcosis was induced with chloral hydrate by mouth. The site chosen, lateral to the right subcutaneous abdominal vein, was shaved and cleansed thoroughly† and the basal narcosis was supplemented by an extensive field infiltration‡ as it was judged that a large incision would be required to permit the passage of the foetal mass. With the cow in dorso-lateral recumbency, a 15-inch skin incision was made 3 inches lateral to the subcutaneous abdominal vein. The underlying abdominal muscle and peritoneum

* Now at Ontario Veterinary College, Guelph, Canada.
† Cetavlon.
‡ Xylotox.

References

CHARTON, A., DURIEUX, J., & DURIEUX, M. (1957). *Rec. Méd. Vét. Alfort.* **133.** 12. 1,068.
HALL, M. C., & CRAM, E. B. (1925). *J. Agric. Res.* **30.** 949
LAPAGE, G., BLAKEMORE, F., & WORTLEY, W. H. (1947). *Vet. Rec.* **59.** 13. 176.
OLSEN, O. W. (1943). *J. Amer. Vet. Med. Assoc.* **102.** 433.
———. (1944). *J. Parasitol. (Suppl.).* **30.** 14.
———. (1944). U.S. Dept. Agric. Leaflet.
———. (1947). *Amer. J. Vet. Res.* **8.** 29. 353.
PLOTNIKOV, N. N., & SOKOLOV, L. N. (1947). *Farmakol., i, Toksikol.* **10.** 2. 47.

FIG. 1.

were in turn incised, the omentum reflected forward, and one uterine horn brought through the incision. A 14-inch incision was made through the wall of the uterus and with some manipulation the Siamese twins were removed. The placenta was healthy, voluminous, macroscopically normal, and was detached with ease before the uterus was closed with two rows of continuous Lembert sutures. Involution was rapid. The wound edges of peritoneum and muscle were in turn apposed by continuous sutures. The skin was sutured using interrupted mattress sutures of tape and the cow was released to a normal recumbent position. One and a half grammes of chlortetracycline* were administered intravenously in 1 litre of glucose saline.

The cow was up the following day and recovery was uneventful. The stitches were removed 14 days later.

Examination of the twins after delivery revealed that each possessed a normal head, thorax, forelegs, and back legs. The union was of continuous flesh from xiphisternum to xiphisternum and between both pairs of back legs to a common perineal region. According to Gurlt's classification (1) this would indicate that the twins might be labelled *Gastrodidymus octipes*. In the abdomen, the viscera were apparently normal each having a liver, spleen, and gastro-intestinal tract except that the rectum of each twin joined together in the mutual pelvic canal to form a common blind cloaca. Also, the urinogenital system consisted of only 1 kidney and 3 intra-abdominal testicles.

A common pelvic canal was formed by the pubic symphyseal surfaces being joined to the corresponding pubic symphysis of the other twin.

On enquiry it was learned that 2 previous gestations had resulted in normal deliveries of healthy calves.

The owner decided to fatten the cow rather than breed her again.

Reference

FLEMING, G. (1930). "Veterinary Obstetrics." 4th ed. P. 286. Baillière, Tindall & Cox, London.

* Aureomycin.

Current Literature

ABSTRACTS

Auscultation as an Important Aid to the Diagnosis of Fractures. COLWILL, JOHN C., and BERG, ELLIOT H. (1958). *Surg. Gynec. and Obstet.*, **106,** 713.

The authors base this test upon the phenomenon of the alteration of bone conduction following fracture. A subcutaneous bony area proximal and distal to the suspected fracture is chosen. With the stethoscope applied to one area, the other area is tapped by the finger, using the same force generally used in percussion of the chest. The procedure is then repeated, using identical areas on the opposite limb, and the transmitted sounds compared, that on the fractured side being of much less intensity and pitch.

The authors selected 50 cases, comprising 15 different types of fracture, and induced a positive sign in 44. They consider the procedure particularly valuable in cases where all the normal physical signs of fracture are absent, such as in fracture of the pelvis.

R. G. W.

A Case of Generalised *Cysticercus bovis*. JUMP, A. (1958). *The Sanitarian*, **67,** 210.

Cases of generalised *Cysticercus bovis* infection in beef carcases are not common in Britain, this being the first case of generalisation in over 1,500 carcases found infected in the Letchworth abattoir since 1948. Opportunity was taken to make a thorough search for cysts and a total of 211 cysts were found, 174 being viable and 37 degenerated. In the heart 30 of the 34 cysts found were degenerated, supporting the theory that cysts tend to degenerate earlier in this organ than elsewhere. There would appear to be a correlation between the number of cysts found in the so-called sites of predilection (head, heart and diaphragm) and the rest of the carcase, and if cysts are numerous in the predilection sites they are likely to be found in other locations. It is emphasised that in searching for cysts there must be a nice balance between what is necessary to make an accurate diagnosis and the prevention of unnecessary spoilage of good carcase meat.

H. T.

Bonemeal as a Source of Bovine Salmonellosis. GRAY, D. F., LEWIS, P. F., and GORRIE, C. J. R. (1958). *Aust. Vet. J.*, **34,** 345.

Between June and October 1957, 49 of 575 dairy cows on 9 farms in Victoria, Australia required veterinary attention. All exhibited similar symptoms, the most prominent of which was severe diarrhoea; 18 died. Bacteriological examination of specimens from 8 cattle from 6 of the farms revealed the cause of death to be Salmonella infection, 6 different Salmonella species being isolated in all, 4 from 2 cows on the same farm. All the cows on the 9 farms received bone-meal either in cow-meal or in a bone-meal salt lick. No further trouble was experienced on these farms after withdrawing these

2 materials from use. Bacteriological examination revealed that they were contaminated with Salmonellae, 6 samples of cow-meal being found to contain 11 different Salmonella species, 2 of which had been found in the cows. Examination of the bone-meal itself revealed a similar distribution of species in it as in the cow-meal; no Salmonellae were found in the other constituents of the cow-meal.

Other samples of bone-meal were also found to be contaminated with Salmonellae, one sample after being stored on a farm for 13 months.

The conversion of stock feeds containing Salmonella-infected bone-meal into pellets was found to render them free of contamination. It is recommended that such feeds be employed either in pelletted form or the bone-meal be replaced by rock phosphate. H. W. S.

Acaricide Resistance in the Blue Tick *(Boophilus decoloratus).* WHITEHEAD, G. B. (1958). *Bull. Ent. Res.*, **49,** 661.

Before 1940 sodium arsenite dips had been used on the East Coast of South Africa for 30 to 40 years to control *Boophilus decoloratus,* but du Toit *et al.* (1941. *J. S. Afric. Vet. Med. Ass.*, **12,** 50-58) reported then that it had become resistant to this dip, but only on a narrow coastal strip from Port Elizabeth through Natal to the North. Sodium arsenite was then replaced by BHC, but as the literature quoted by the author shows, after 18 months this tick also became resistant to BHC and, in some areas, the BHC resistance developed without previous resistance to sodium arsenite. For 6 years DDT was then used to control ticks resistant to both arsenic and BHC, but Whitehead (1954, *J. S. Afric. Vet. Med. Ass.*, **27,** 117-120) first noted that these ticks had become resistant to DDT and that resistance to these 3 substances could develop independently.

In this paper Whitehead describes tests of fully-engorged, adult female ticks and of unfed larvae. As there are no areas in which insecticides have not been used, he used, as a standard for comparison, ticks collected from range cattle on the Frankenwald Experimental Farm (Johannesburg), where no resistance to the toxaphene or BHC used had been noted; these were regarded as sensitive ticks. Resistant ticks were collected from farms in the East London district. Fully-engorged female ticks were used 3 to 5 days after removal from the cattle, and were dipped in an adaptation (illustrated) of the immersion apparatus of McIntosh (1947, *Ann. Appl. Biol.*, **34,** 233-239), controls being dipped in water. The number of ticks that laid eggs was noted, with the percentage hatch of these eggs. Larvae were obtained from female ticks kept in glass tubes, and used when 15 to 30 days old. They were dipped in the same apparatus, but their size required a special technique for their recovery, which is described.

For the detailed results, which are illustrated by tables, graphs and histograms, the paper itself must be consulted. The larvae were not tested with sodium arsenite or Dilan, because wettable preparations of these were not satisfactory, but tests with the other substances used (DDT, BHC, toxaphene, chlordane, dieldrin, aldrin, malathion and diazinon) enabled the results to be expressed in dose-response curves, from which the L 50's given could be accurately estimated. On the Frankenwald larvae gamma BHC gave a 50 per cent. mortality at the lowest concentration used and the other preparations, in decreasing order of efficacy, were: toxaphene, dieldrin, aldrin, chlordane, DDT, malathion. On Frankenwald adults the order of decreasing efficacy was gamma BHC, chlordane, toxaphene, Dilan, DDT, dieldrin, sodium arsenite, aldrin, malathion.

The author concludes that there are 3 distinct types of resistance, *i.e.* (1) to arsenic; (2) to gamma BHC which automatically confers cross-tolerance to toxaphene, chlordane, dieldrin and aldrin, and (3) to DDT which confers cross-tolerance to Dilan. Each of these had developed independently and could occur separately or together in any single tick population. Cross resistance of the blue tick is similar to that of *Musca domestica* (see Busvine & Harrison, 1953. *Bull. Ent. Res.* **44,** 729-738). This might suggest a similar mechanism, but DDT resistance is an exception in that it shows in the blue tick cross tolerance to Dilan, which is not so in Diptera (see Metcalf, 1955. *Physiol. Rev.* **35,** 197-232). Whitehead suggests that dehydrochlorination of DDT may not contribute to DDT resistance of the blue tick and this is supported by the fact that in DDT-resistant *Boophilus microplus* the DDT-dehydrochlorinase found in house-flies by Sternburg *et al.* (1954. *J. Agric. Fd. Chem.*, **2,** 1125-1130) is not present.

The distribution of the resistant strains in South Africa suggests that climate may play a part. The climate of the East Coast strip is equable with a frost-free winter, but in inland areas there are frosts for several months and excessively low humidities. On the East Coast the blue tick will go on breeding during winter, but inland it is numerous only in summer and even then its population is not so high as it is on the coast. Rapid breeding and consequent frequent treatment of cattle, at 7-day intervals in summer and 14-day intervals in winter, have contributed to the development of the various types of resistance and this suggests that they would develop in the interior of Africa if a sufficient number of generations of ticks were repeatedly treated with insecticide. This has, in fact, occurred. BHC resistance has appeared in Northern Rhodesia (Mathysse, 1954. *Dept. Vet. Serv., N. Rhodesia*) and in the Transvaal (Purchase, personal communication to the author), but in the Transvaal it appeared only after the use of BHC for 5 or 6 years, whereas on the East Coast it appeared in 18 months. Thus development of resistance may be only a matter of time.

G. L.

Immunisation for the Control of Avian Encephalomyelitis. SCHAAF, K. (1958). *Avian Diseases.* **2.** 279-89.

The author describes the preparation of a live virus vaccine for use against infectious avian encephalomyelitis. He states that during the past 6 years no major outbreaks have occurred in the progeny of flocks in which the breeding stock have been vaccinated in this way. The efficiency of the vaccine was studied experimentally in young chicks.

E. A. G.

The Association of Veterinary Students' Annual Conference

THE IXth annual conference was held in London and Cambridge from January 23rd to 25th, and 650 delegates attended. This attendance was the largest on record. The first two days were spent in London, at the Royal Veterinary College, and on the Sunday the delegates were entertained by students at the School of Veterinary Medicine, Cambridge University.

The conference was opened on Friday morning, January 23rd, by the Minister of Agriculture, Mr. John Hare. Mr. J. Bleby (R.V.C.), Vice-president (Acting-president) of the Association, was in the Chair. Before introducing the Minister, Mr. Bleby welcomed the delegates to the conference and added that some 300 of them were viewing the proceedings from the Dissection Room by means of closed-circuit television. Mr. Bleby also welcomed the presence of some distinguished members of the profession, among them Professor Bosworth, President of the R.C.V.S., Mr. Ritchie, Chief Veterinary Officer, Mr. Quick, Animal Health Division of the Ministry, and Mr. Hebeler, President of the B.V.A. In introducing the Minister, Mr. Bleby told the delegates that the Association had never before invited any guest speakers from outside the profession. The committee had therefore decided to go to the top, and luckily for the Association the "top man" had consented to come. Mr. Bleby stressed how readily the Minister was prepared to help and co-operate with the veterinary profession. During the past year Mr. Hare had made representations in the House about the dangers of foot-and-mouth disease from contaminated Argentine meat, new restrictions on slaughterhouses, importation of Charollais bulls and, recently, the small-farming improvements. Finally, Mr. Bleby said that the veterinary profession and the agricultural industry must not be separated. With the liaison that had grown over the last 20 years British agriculture and the British veterinary profession represented all that was best in these fields.

Official Opening by the Minister of Agriculture

The Minister thanked the Association for honouring him and thanked Mr. Bleby for his remarks. He said he had two reasons for coming: to see the budding members of the profession and because no Minister of Agriculture had visited the Royal Veterinary College for the purpose of opening any conference. Mr. Hare then said that continued agricultural prosperity depended much on the skill and efficiency of the veterinary surgeon. For this reason the Minister was impressed that students from the 4 countries had met to exchange ideas and to listen to leading members of the profession.

The student to-day was on the threshold of many exciting and dramatic discoveries. There were many new ideas to expound. As an example of this progress the Minister had attended, two nights previous to the conference, a dinner to celebrate the 10,000,000th A.I. calf (and had dined on some excellent A.I. beef). In another sphere, Mr. Hare hoped that in 2 years we would be celebrating the complete eradication of bovine tuberculosis from the United Kingdom. Although these were great steps forward we still had a long way to go; Johne's disease and fowl pest were still to be controlled. Research workers would put us on the road and it was then up to the general practitioner and the Ministry to carry the work out.

The Minister went on to say that while he was in the Colonial Service he had come to realise that the veterinary profession of these islands was the finest in the world. On qualifying, the new graduate might represent the Royal College all over the world, in the Commonwealth, foreign countries and with such an international organisation as F.A.O. A high standard of living went hand in hand with a high standard of agriculture, and a high standard of agriculture was impossible without a high standard of veterinary science. The Minister then told the delegates that it was up to them to maintain this high standard. The delegates' predecessors had done much but innumerable new problems were building up and it was the veterinary surgeons to be who would have to meet them. Mr. Hare was sure, however, that the delegates would continue the work in the same spirit that had animated the profession in the past. He then wished each one of the delegates the very best of luck and hoped that they would have a successful conference.

Reply by Dr. R. E. Glover

Mr. Bleby then called on Dr. Glover, Principal and Dean of the Royal Veterinary College, to reply to the Minister.

Dr. Glover regarded it as a great privilege that he should reply on behalf of the Association. He considered that the Ministry and the veterinary profession were linked closely to each other for mutual benefit. Faith, hope and charity were reflected in this association. The faith that the Animal Health Division had shown in the eradication of disease had been stronger initially than that of the profession. This was especially true regarding the attested herds scheme for bovine tuberculosis. Dr. Glover then referred to the Minister's new plans for further eradication of disease. It was here that there lay great hope for the future. He assured the Minister that the profession was wholeheartedly behind him in these plans.

Dr. Glover then turned the third factor. He considered that one of the wisest things that the Ministry had done in the early stages was to bring the general practitioner into the Attested Herds Scheme. The delegates' future prosperity depended in no small way on such schemes. Charity, in its very broadest sense was something the profession needed.

In conclusion, Dr. Glover welcomed the official guests and all the visiting delegates.

Departmental Demonstrations and Visits to Veterinary Establishments

After the opening ceremony the delegates were invited to tour the college and visit the departmental demonstrations. These demonstrations presented some of the research work carried out recently at the Royal Veterinary College. Friday afternoon was

devoted to visits to veterinary establishments around London. Coach loads of delegates toured Burroughs Wellcome Ltd., Beckenham; May and Baker Ltd., Dagenham; R.S.P.C.A. Reception Centre, London Airport, and the Veterinary Laboratories, Ministry of Agriculture, Weybridge. There was also a film show at the Royal Veterinary College. The films were of veterinary interest and were watched by a large audience. The show consisted of films produced in the College by the Departments of Anatomy, Physiology and Surgery. Sporting competitions were unfortunately cancelled owing to the inclement weather, but in the evening delegates attended a most successful gala dance at St. Pancras Town Hall.

On Saturday morning the programme was devoted to a closed circuit demonstration of surgery and a symposium given by veterinary surgeons on the future of the profession.

At the symposium the Chair was taken by Mr. B. Richmond (Cambridge). He apologised on behalf of Dr. N. S. Barron who unfortunately had been unable to come at the last moment. Mr. Richmond added that Dr. F. R. Bell had kindly consented to take Dr. Barron's place at extremely short notice, and that he would speak on the role of the veterinary surgeon in teaching. Mr. Richmond then introduced the other speakers: Mr. R. S. Marshall who would speak on "The Colonial Service," Mr. L. Guy Anderson on "General Practice," and Dr. A. W. Stableforth on "National Research." It is hoped to publish a résumé of these papers in the next issue of THE VETERINARY RECORD.

Some 450 delegates watched a closed-circuit television demonstration of a lens extraction. The patient was an 8-year-old Cocker Spaniel. Mr. G. C. Knight conducted the operation, and the commentary was given by Mr. G. R. Robbins.

The Top Table: (Left to right) The Minister of Agriculture, Mr. J. Bleby (Acting-president), and Dr. R. E. Glover, Principal and Dean of the Royal Veterinary College.

The Organising Committee: (Left to right) Messrs. J. Stock, R. Green, J. Broberg, B. Richmond, B. Thompson, Miss S. Stewart, Messrs. J. Bleby, I. W. Denly, B. Pooley, M. Gordon, J. Staton, D. Poulter, Mrs. C. Lorenzen and Mr. R. Freeman.

Social Activities and the Annual General Meeting

The six-a-side soccer competition for the R.C.V.S. cup was played off in the afternoon and resulted in a win for Edinburgh. Another sporting fixture was the Wooldridge Cup, a challenge match between Dublin and London rugger men which resulted in a win for London (6 points to 3). In the evening delegates gathered at the Royal Veterinary College for a variety of social activities. These included a boxing tournament, a table tennis tournament, and a contract bridge competition.

A council meeting was held during the evening when the following decisions were taken :—

1. Clarification of minor constitutional matters.
2. That the business of the Association be brought to the notice of the whole profession, when ever possible.
3. That the venue of the tenth annual conference be Dublin (subject to confirmation).
4. Election of the new President, Mr. R. Harcourt, Edinburgh.

The Annual General Meeting of the Association was held at the Royal Veterinary College on Sunday morning.

The Secretary reported on a difficult year because of changes in the Officers of the Association. There were no outstanding items of general business. He hoped the delegates had enjoyed the conference and he thanked them for their co-operation.

The Treasurer reported that in his and the Council's opinion the Association was not working on a sufficiently sound financial basis. He had therefore proposed at the council meeting that some measures must be taken to raise a larger annual income. This was vital in view of the fact that this year's conference would not have been possible without the generosity of the Royal Veterinary College Council.

The editor reported on a proposed re-organisation of the journal.

The President, in a brief address, thanked all the official delegates and the conference committee for their staunch support during his term of office. He hoped he had served the Association well and

(*Concluded at foot of col. 1 overleaf*)

B.V.A. Annual Congress: Provisional Programme of Papers

We believe readers will be glad of some advance information about the proposed programme for the 1959 Annual Congress to be held at Folkestone during the first week of September. The secretary of the Provisional Committee has kindly provided the following notes.

Monday, August 31st

Afternoon

The Ecology of Liver Fluke (*Fasciola hepatica*). Author: Dr. C. B. Ollerenshaw, PH.D., B.SC., of Weybridge.

Abnormal Behaviour in Dogs and Cats. Author: Mr. A. N. Worden, M.A., B.SC., F.R.I.C., of Huntingdon.

Tuesday, September 1st

Morning

Radiobiology: The Metabolism of Iodine and Strontium in Cows. Author: Mr. R. J. Garner, M.A., M.V.SC., F.R.C.V.S., A.R.I.C., of Compton.

Diseases Associated with Broiler Production. Author: Dr. R. F. Gordon, D.SC., M.R.C.V.S., of Houghton.

Plenary Session

The Association Between Intensive Farming and Livestock Disease. Author: Dr. E. L. Taylor, C.B.E., M.R.C.V.S., D.V.H., N.D.A., N.D.D., of Weybridge.

Afternoon

(a) The Therapy of Parasitic Gastro-enteritis in Sheep and Cattle. Author: Mr. T. E. Gibson, M.V.SC., M.R.C.V.S., of Weybridge.

(b) Treatment of the Debility Associated with Severe Parasitism. Author: Mr. J. B. White, M.R.C.V.S., of Salisbury.

Diseases of Mink. Author: Mr. K. W. Head, B.SC., M.R.C.V.S., of Edinburgh.

Diseases of Chinchillas. Author: Mr. R. Bowden, M.R.C.V.S., DIP.BACT., of Newmarket.

Wednesday, September 2nd

Morning

Some Tumours of Dogs and Cats of Comparative Veterinary and Human Interest. Author: Dr. E. Cotchin, M.R.C.V.S., of the Royal Veterinary College, London.

Blood Grouping in Domestic Animals. Author: Dr. J. G. Hall, M.R.C.V.S., of Edinburgh.

Progeny Testing. Author: Professor J. E. Nichols of Aberystwyth.

The Sense of Taste in Animals. Author: Dr. F. R. Bell, B.SC., M.R.C.V.S., of the Royal Veterinary College, London.

Thursday, September 3rd

Morning

Differential Diagnosis of Some Diseases of the Canine and Feline Thorax. Authors: Mr. I. M. Lauder, M.R.C.V.S., and Mr. D. Lawson, M.R.C.V.S., of Glasgow Veterinary School.

Plenary Session

The Principles and Practice of the Control and Eradication of Disease. Author: Mr. J. N. Ritchie, C.B., B.SC., D.V.S.M., F.R.S.E., Chief Veterinary Officer.

Friday, September 4th

Morning

Enzyme Systems and their Relationship to Diseases of Livestock. Author: Dr. E. C. Owen, of the Hannah Research Institute.

Hind Leg Lameness in the Horse. (Author to be announced.)

Symposium on Johne's Disease.

"Diagnosis." Mr. N. H. Hole, M.R.C.V.S., and Mrs. Maclay of Weybridge.

"Incidence." Dr. F. W. Withers, M.A., M.R.C.V.S., of Marlborough.

"Vaccination." Mr. H. N. Spears, M.R.C.V.S., of Weybridge.

"Experimental Infection." (Author to be announced.)

"Diagnostic Significance of Faecal Examination." (Author to be announced.)

Afternoon

Diagnosis and Treatment of Infertility in the Individual Cow. Author: Mr. J. G. Murray, M.R.C.V.S., DIP.BACT., of Ledbury.

Congress Accommodation

We should like to thank those members who have notified the B.V.A. of their intention to attend the Congress, and in particular of their wish to stay at the Metropole Hotel. We would remind them, however, that *they should advise the hotel direct* as to their exact requirements for accommodation, giving the dates of arrival and departure.

A.V.S. Annual Conference.—*Concluded.*

assured the delegates that he had enjoyed the honour and privilege of representing them. He then introduced the new President, Mr. Harcourt. He had already done valuable service for the Association and was a well-known and well-liked member.

Mr. Harcourt thanked Mr. Bleby for his kind words and took the opportunity to tell the delegates that it was nonsense to talk of Mr. Bleby as either "Vice-president" or "Acting-president," he had been President of the Association for no less than 6 months. He had accomplished the difficult operation of changing horses in mid-stream and had accomplished it well. Mr. Harcourt considered that the Association should be extremely grateful to Mr. Bleby for his term of office.

Visit to Cambridge

The delegates then went to Cambridge. After an excellent lunch they were shown round the Veterinary School and Hospital. This proved to be a most interesting afternoon. The equipment at Cambridge is first class and the school itself is pleasantly situated away from the town, a factor envied by many students of the older veterinary colleges. The Cambridge students proved excellent guides when the visitors were shown round some of the colleges in the University.

The conference closed after a final gathering over tea.

News and Comment

BRITISH COUNCIL COURSE ON FOOT-AND-MOUTH DISEASE

This course is offered by the British Council in co-operation with the Research Institute (Animal Virus Diseases) at Pirbright, Surrey, which functions under the aegis of the Agricultural Research Council. The course will be directed by Dr. Ian A. Galloway, Director of the Institute, and will take place from October 18th to 31st, 1959.

The course is designed to provide information on the latest scientific advances in research on foot-and-mouth disease. Lectures and demonstrations will be given by members of staff of the Research Institute, and the subjects dealt with will include: Examination and Immunological Classification of Virus Samples; Inactivated Vaccines: virus potency testing, safety and potency testing of vaccines; Attenuated Strains; Tissue Culture: tongue epithelial cultures, kidney cultures; Pathology and Experimental Cytology; Applied Genetics; Biophysics; virus structure, specificity of virus fractions; Biochemistry: agar gel diffusion technique, immuno-electrophoresis, RNA preparations, chromatography, freeze drying of virus and vaccines.

The course is intended for overseas graduates in veterinary science, with preference for those actively engaged on research work on animal virus diseases in their own countries. There will be vacancies for 15 members, who will be accommodated in hotels in the neighbourhood of Pirbright. The fee will be £47.

POST-GRADUATE COURSE IN POULTRY SCIENCE

Recent developments in the poultry industry in this country have stressed the importance of attracting to the industry competently trained graduates to serve its needs both in an advisory capacity and as research workers. With this end in view, Wye College has instituted a two-year course in poultry science leading to a M.Sc. Degree in Agriculture of the University of London. The course will be open to graduates in Agriculture and normally to graduates in Veterinary Science, Zoology and other relevant sciences. Candidates will be required to apply through the College to the University for registration for the degree of M.Sc.

Application for admission to the course must be made to the Registrar, Wye College, near Ashford, Kent.

THE LABORATORY ANIMALS CENTRE

A symposium on Quality in Laboratory Animals will be held at The Royal Veterinary College, London, on Thursday, April 16th, 1959.

The Chairman will be Dr. J. S. Paterson, Ministry of Supply Establishment, Allington Farm, Porton Down, Salisbury; the provisional programme will be as follows:—

9.30 a.m. Opening remarks by Chairman; 9.45 a.m. The Investigation of Specific Responses in Laboratory Animals, by Dr. Annie M. Brown, Laboratory Animals Centre, Carshalton; 11 a.m. Establishing and Maintaining a Colony of Specific Pathogen Free Mice, Rats and Guinea-pigs, by Dr. D. G. Davey, Imperial Chemical Industries Ltd.; 11.30 a.m. The Achievements of Selective Breeding, by Dr. D. S. Falconer, Institute of Animal Genetics, University of Edinburgh; 12 noon. Nutritional Factors Affecting Quality in Laboratory Animals, by Mr. A. N. Worden, Nutrition Research Unit, Huntingdon; 2.30 p.m. Latent Infections in Laboratory Animals: Their Importance and Control, by Monsieur E. Sacquet, Centre de Sélection des Animaux de Laboratoire, Gif-sur-Yvette, France; 3 p.m. Pathological Changes in Old Rats in Relation to Chronic Toxicity Tests, by Dr. P. N. Magee, Toxicology Research Unit, Carshalton; 3.30 p.m. Summary by Chairman.

This symposium will be held on the day following the 12th L.A.C. Congress. The Trade Exhibition arranged for the Congress will be continued for an extra day in order that those attending the symposium may have an opportunity of visiting it.

The symposium is open to scientific, medical and veterinary graduates, for whom it is primarily intended; senior animal technicians will also be welcome.

CATTLE IN TRANSIT

Cattle injured in transit on railways was discussed at the meeting of the executive committee of the Federation of Wholesale Fresh Meat Traders.

Mr. R. Noel Parker said he had attended a meeting with representatives of all railway areas. A proposal was made for a scheme which would allow animals which were taken out of cattle trucks on the advice of a veterinary surgeon as being unfit for travel to be disposed of by a responsible wholesaler or retailer instead of being sent to a knacker's yard. The railway representatives felt there might be some serious practical objections to such arrangements.

The Fresh Meat Wholesalers executive decided to circularise members and ask if they would be prepared to accept such animals at whatever time they were called upon to do so in the event of a scheme being set up.

IN PARLIAMENT

Monkeys in Transit

The House of Lords discussed recently the sufferings of a consignment of monkeys which were landed in this country on the way from Addis Ababa to Canada, about which long articles had appeared in the newspapers. A question in Lord Dowding's name read as follows:—

To ask Her Majesty's Government whether their attention has been drawn to the specific case of a cargo of monkeys sent by air from Addis Ababa to this country, *en route* for Canada, in view of the facts that on arrival at Hurn Airport on January 15th it was found that over 200 had died during transit, while many others were sick and dying; that they were given injections and other veterinary attention during which more died, and that the journey of the

survivors to Canada was hastily resumed; and also to the general case of Indian monkeys, including many sick and pregnant animals, retained for weeks on a Sussex farm with no veterinary attention, pending despatch to commercial and other laboratories; and to ask whether, in view of this evidence of neglect and callousness, Her Majesty's Government will reconsider their refusal to appoint a Commission to inquire into the working of the existing vivisection laws.

LORD CHESHAM: My Lords, inquiries have been made into the particular cases to which the noble and gallant Lord refers, but no evidence has been found to support the charge of neglect and callousness. As regards the last part of the Question, the Cruelty to Animals Act, 1876, which regulates experiments on living animals, has no application to these cases, and Her Majesty's Government can therefore see no reason to reconsider the question of an inquiry into the working of the Act.

LORD DOWDING: My Lords, that reply gives rise to a number of supplementary questions which I hope I may be allowed to put one at a time, in order to avoid confusion. It may be that the noble Lord who replies will require notice of some of these questions. May I ask, first, whether any diplomatic inquiries were made at Addis Ababa with regard to the transport and loading of the monkeys at the starting point?

LORD CHESHAM: My Lords, so far as I am aware no diplomatic inquiries were made. The responsibility in this country for the monkeys, as I understand the matter, was confined to their being in transit through this country in the part of their trip when they were in this country.

LORD DOWDING: My Lords, have any inquiries been made as to how many of these monkeys survived the journey to Canada, and, of those, how many were sick?

LORD CHESHAM: My Lords, I cannot give that information. They were not, if I may put it this way, our monkeys; they were Canadian monkeys by purchase. We know how many left here, but I have no information on how many actually arrived in Canada.

LORD DOWDING: My Lords, would the noble Lord not consider, when he absolves us from responsibility for what happens to animals in transit through this country, that this case is rather analogous to that of the Irish horses which used to be sent through this country for slaughter on the Continent? In view of the suffering entailed to those animals it was decided that that traffic should be forbidden. Is it not possible to do the same in this case?

LORD CHESHAM: My Lords, I do not think that anything I said endeavoured to absolve us from any responsibility for these monkeys. Indeed, I should say that the opposite had happened, because the action taken was extremely good, as the noble and gallant Lord knows. Tremendous efforts were made. The monkeys were suffering largely from a bacteriological infection of the nature of enteritis, and the most tremendous efforts were made, both by the veterinary services and by the R.S.P.C.A., to do everything they could to restore these monkeys to a state of health.

LORD DOWDING: Were sick and pregnant monkeys sent to Shamrock Farm in unheated vans?

LORD CHESHAM: Not to my knowledge.

LORD DOWDING: Were there any persons at Shamrock Farm qualified to give veterinary attention?

LORD CHESHAM: With regard to Shamrock Farm, where monkeys are kept after having been imported, all I can say is that there exists the general law protecting animals which are kept in captivity; that is, the Protection of Animals Act, 1911. I may add that this particular farm has been inspected by the police and by the R.S.P.C.A., neither of whom found any grounds for any action.

LORD DOWDING: My Lords, if I may say so, that is not a reply to my question. Is the noble Lord aware that two, and sometimes three, monkeys were kept in cages which are I think called "Visichick" cages, which are designed for occupation by one hen?

LORD CHESHAM: No, my Lords, I was not aware of anything of the kind. I have no knowledge of where the noble and gallant Lord obtains his information, but I should be very surprised to hear that on this farm, which had been visited and inspected by both the authorities particularly concerned with the application of the Protection of Animals Act, there were things going on which should not be.

VISCOUNT ELIBANK: My Lords, may I ask the noble Lord whether any representations have, in fact, been received from the R.S.P.C.A. pointing out any cruelties or anything of that nature?

LORD CHESHAM: No, my Lords.

LORD DOWDING: My question referred to the state of affairs at this farm before an employee there gave information. In the mid-autumn, were there at this farm an incinerator, sterilising apparatus, isolation accommodation or even washing facilities?

LORD CHESHAM: My Lords, I am certainly not in a position to be able to answer "Yes" or "No" to the noble Lord's question. I have already said twice that the authorities concerned with preventing cruelty to animals were satisfied with the place, and I do not think I can say any more than that.

PARASITIC DISEASES OF CATTLE

A new revised edition of this B.V.A. handbook is about to go to press. It has been decided to make a charge of 2s. 6d. post free to members of the Association and to veterinary students, and of 10s. post free to persons or organisations outside the B.V.A. In order to estimate the demand, and not over print, it would be most helpful if intending purchasers would notify B.V.A. headquarters (7 Mansfield Street, London, W.1.) at their earliest convenience that they will require a copy or copies. A postcard will suffice.

PRESS ARTICLES AND BROADCASTING

At the recent meetings of the Council and Committees of the B.V.A. the question of articles being written or sponsored by individual members of the profession in the press was considered, and it was decided to repeat the Association's offer to help

any veterinary surgeon who wished to act in this way. It is important, however, that contact should be made with the Association at the very earliest, if possible at the outset, if the advice and assistance which may be offered shall be truly effective.

CLASSIFIED ADVERTISEMENTS

We must again draw attention to the growing practice on the part of some readers of sending classified advertisements without pre-payment. As mentioned in a paragraph on this subject in our issue of January 24th, this leads to a considerable amount of wasted clerical labour and to complication of the Association's weekly accounting. We should regret the necessity of having to decline classified advertisements sent without pre-payment, but such a course will become inevitable unless those concerned can be persuaded to comply with B.V.A. regulations in this matter.

NEW PROFESSOR AT EDINBURGH

Dr. James S. A. Spreull has been appointed to the William Dick Chair of Veterinary Surgery in Edinburgh University in succession to Professor Emeritus W. M. Mitchell. Dr. Spreull, who is 50, is expected to take up his appointment in May.

Educated at Dundee High School and the Royal (Dick) School of Veterinary Studies, Dr. Spreull became a member of the Royal College of Veterinary Surgeons in 1930. He spent three further years as a lecturer in applied anatomy in the college and was awarded the degree of doctor of philosophy by Edinburgh University in 1934. Since then he has carried on a general practice in Dundee.

Dr. Spreull was formerly examiner in veterinary anatomy to the University of London and to the Royal College of Veterinary Surgeons.

A GREETING FROM FRANCE

As the recipient of one of the Steele-Bodger awards, Mr. Eric Williams F.R.C.V.S., has been travelling recently in France, and has made contact among other organisations with the French Society of Practising Veterinary Surgeons. Mr. Williams has recently received a letter from the President of that body, part of which reads as follows :—

"I had the pleasure, as vice-president, of welcoming you at our meeting on May 14th, 1958, and I am so pleased that this contact has become established between a British veterinary surgeon and the 1,500 veterinary surgeons of our society. Here is a happy omen for the future, and I know how pleased you are to have been an architect of this collaboration; to my knowledge you are the first foreign colleague who has participated in an active way in our work.

"I hope that your example will be followed by other colleagues from across the Channel and that they will give us the benefit of their knowledge by participating in our discussions as you have done, and by communications. On our side it would give us great pleasure to participate in the same way in your work. I hope that the bonds of friendship you have forged will grow: all of us have very much to gain by such communal work."

UNIVERSITY NEWS

Bristol

The Centaur Society.—The 9th annual dinner of the society was held at the Berkeley Café, Clifton, on January 21st. The dinner was attended by a company of over 180, the largest in the history of the society.

The guest of honour was Dr. E. L. Taylor, Deputy Director of the Ministry of Agriculture Veterinary Laboratory, and other principal guests included the Vice-Chancellor, Sir Philip Morris and Lady Morris, the Dean of the Faculty of Medicine, Professor Neale and Mrs. Neale. Many members of staff and a number of local practising veterinary surgeons were also present. Dr. Taylor, who was introduced by the honorary President, Professor Ottaway, proposed the toast of the society to which the student-President Mr. J. R. Bainbridge replied. The secretary, Mr. M. R. Wilson, proposed the guests, and to this toast the Vice-Chancellor replied. Mr. D. M. Stewart proposed "absent friends." At the conclusion of the dinner members and guests moved to the ballroom for dancing until 1 a.m. The organisation of this very enjoyable function was in the hands of Mr. L. M. Whittard.

THE REGISTER OF VETERINARY SURGEONS

The undermentioned were entered on the Commonwealth List of the Register of Veterinary Surgeons on the dates indicated :—

Banks, Margaret Enid (Mrs.), B.V.SC.(SYDNEY), 12 The Grove, Lower Mitcham, South Australia. January 13th, 1959.

Beauregard, Sally Toutant (Miss), D.V.M.(TORONTO), 8 The Branderies, Wallington, Surrey. January 26th, 1959.

Day, Anthony Marshall, B.V.SC.(PRETORIA), c/o Dr. G. H. Day, Cooks Hill, Mundesley, Norfolk. December 30th, 1958.

Silberman, Gideon, B.S., B.V.SC.(QUEENSLAND), Petah-Tikva, P.O. Box 47, Tel-Neta, Israel. January 26th, 1959.

R.C.V.S. OBITUARY

We record with regret the deaths of the following members of the profession :—

Aveston, James Johnston, Meriville, Lilliput Road, Parkstone, Dorset, Capt. late R.A.V.C. Graduated December 16th, 1904, at the Royal Veterinary College, London. Died January 12th, 1959, aged 75 years.

Beckett, Alfred James, 20 Southwood Road, Liverpool, 17, Capt. R.A.V.C. (T.F.) (retd.). Graduated December 20th, 1893, at the Royal (Dick) Veterinary College, Edinburgh. Died January 27th, 1959, aged 90 years. Mr. Beckett voluntarily relinquished membership in 1955.

McCaskill, Hugh, B.V.M.S.(EDIN.), 59 Merchiston Crescent, Edinburgh, 10. Graduated July 17th, 1957, at the Royal (Dick) School of Veterinary Studies, Edinburgh. Died December 25th, 1958.

PERSONAL

Marriage

POCOCK—TRESIDDER.—On January 31st, 1959, at the Priory Church of St. Bartholomew-the-Great, City of London, Eric Pocock, B.SC., M.R.C.V.S., of

Aylesbury, to Angela Tresidder, M.B., B.S., of Spellbrook, Bishop's Stortford.

Births

BOYDE.—On January 11th, 1959, to Pamela, wife of Carl Boyde, M.R.C.V.S., of 2 Shelson Parade, Feltham, a son, Christopher, a brother for Elizabeth.

DOWNES.—On December 17th, 1958, at Sandleford Hospital, to Mariann, wife of James Downes, M.R.C.V.S., of Albion House, Oxford Street, Newbury, Berks, a son, Charles James.

SPARROW.—On January 19th, 1959, to Angela, wife of W. B. Sparrow, M.R.C.V.S., at King's College Hospital, a daughter, Ursula Anne.

COMING EVENTS

February

11th (Wed.). Annual General Meeting of the Society for the Study of Animal Breeding at the Royal Society of Medicine, 1, Wimpole Street, W.1.

7th Annual General Meeting of the Society for the Study of Animal Breeding, in the West Hall, R.S.M., 1, Wimpole Street, London, W.1, 11.30 a.m.

13th (Fri.). General Meeting of the Midland Counties Veterinary Association at the Angel Hotel, Ludlow, Salop., 2.30 p.m.

18th (Wed.). Meeting of the Warwickshire Veterinary Club in the Regent Hotel, Leamington Spa, 8 p.m.

Annual General Meeting of the South Eastern Veterinary Association at the Royal Star Hotel, Maidstone, 2.30 p.m.

19th (Thurs.). Meeting of the B.S.A.V.A. Midland Area at the Chace Hotel, Coventry, 7.30 p.m.

Meeting of the Essex Veterinary Society at the Essex Institute of Agriculture, Writtle, Essex, 7.30 p.m.

General Meeting of the Herts. and Beds. Veterinary Society at the Peahen Hotel, 14 London Road, St. Albans, 7.30 p.m.

25th (Wed.). Meeting of the Southern Counties Veterinary Society at the Royal Hotel, Winchester, 7.45 p.m.

Meeting of the B.S.A.V.A. Metropolitan Region at the Royal Society of Medicine, 1 Wimpole Street, London, W.1, 7 p.m.

97th Annual General Meeting of the Lancashire Veterinary Association at the Veterinary Hospital, University of Liverpool, 2.30 p.m.

26th (Thurs.). Annual Ball of Glasgow University Veterinary Association at the Càdoro Restaurant.

Meeting of the Ayrshire Veterinary Association in the Ailsa Lounge, Ayr Station Hotel, 2.30 p.m.

27th (Fri.). Annual Ball of the Liverpool University Veterinary Society in the Students Union.

March

3rd (Tues.). Dance of the Ladies Guild, South East Midlands Division, V.V.B.F., at the Solarium Restaurant, Overstone, Northampton, 9.30 p.m.

4th (Wed.). Annual General Meeting of the South Wales Division at the Dolwas Restaurant and 6 Guildhall Square, Carmarthen, 2 p.m.

10th (Tues.). Annual General Meeting of the Eastern Counties Veterinary Society at the Bell Hotel, Norwich.

20th, 21st and 22nd (Fri., Sat. and Sun.). Conference of the British Small Animal Veterinary Association in London.

April

8th, 9th and 10th (Wed., Thurs., and Fri.). B.V.A. Committee and Council Meetings in Edinburgh.

August

30th to 5th September. 77th Annual Congress of the British Veterinary Association in Folkestone. **(Official opening Monday, August 31st.)**

ADDRESSES OF DISEASE INFECTED PREMISES

The list given below indicates, first the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax

Aberdeen. Mains of Inkhorn, Auchnagatt (Feb. 2).
Dumfries. Woodhead Farm, Moffat (Feb. 2).
Glam. Brynawel, Llandow, Cowbridge (Feb. 2).
Som. Mendip Hunt Kennels, Priddy, Wells; Cloud Hill Farm, Temple Cloud, Bristol (Feb. 2).
Staffs. Generals Farm, Chartley Park, Chartley (Jan. 30); Packington Hall Farm, Whittington, Lichfield (Feb. 2).

Fowl Pest

Essex. Milch Hill, Willows Green, Great Leighs; Kilowen Poultry Farm, Great Maplestead, Halstead (Jan. 28); 4a, Holman Road, Halstead; Corringales Farm, Hatfield Heath (Jan. 29); Sparrows Farm, Hedingham Road, Sible Hedingham (Jan. 30); The Bungalow, Trinity Road, Halstead; Crowbridge Farm, Halstead; Hovis Mill Farm, Halstead (Jan. 31); Elm Tree Farm, Colne Engaine, Colchester; The Olives, White Roding, Dunmow; Blamsters Farm, Halstead (Feb. 1); Valliants Farm, Pebmarsh, Halstead (Feb. 2).
Kent. Red House Farm, New Inn Green, Hythe (Jan. 31).
Norfolk. Forge Bungalow, Lessingham, Norwich (Jan. 28); 14, Church Way, Redgrave, Diss (Jan. 29); Syleham Hall, Syleham, Thressingfield, Diss (Jan. 30); 50, Low Street, Hoxne, Diss (Feb. 2).
Northants. Sunnymead, and Dairy Farm, Piddington (Feb. 2).
Suffolk. Hole Farm, Great Waldingfield, Sudbury (Feb. 1).

Swine Fever

Ches. Manor Farm, Willington (Jan. 30); Old Moss Farm, Stapleford, Tarvin (Jan. 31).
Derbys. Plots 77/78, Canal Side, The Siddals (Jan. 27).
Denbigh. Piggery, Gegin Lane, Llay, Wrexham (Feb. 2).
Devon. Piggeries, Tappers, Hookway, Crediton (Feb. 2).
Dorset. Sandon, Blandford Road, Upton, Poole (Jan. 30).
Essex. Cloverlands, Wivenhoe Road, Alresford, Colchester (Jan. 28).
Flints. Sealand Road Piggeries, Sealand (Jan. 29).
Herts. Coldharbour Farm, Coldharbour Lane, Bushey, Watford; Samuels Farm, Wheathampstead, St. Albans (Feb. 2).
Lancs. Blackfield End Farm, Church Road, Warton, Preston (Feb. 2).
Norfolk. Hapton Hall Drive, Hapton, Norwich (Jan. 27).
Sussex. Slindon Stables, Arundel (Jan. 30).
Warwicks. 21, Moor Lane, Witton, Birmingham, 6 (Jan. 29).

Letters to the Editor

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

Leg Weakness and Twisted Necks in Growing Turkeys

Sir,—During recent years the increasing incidence of leg weakness and twisted necks in growing turkeys has caused concern to many turkey farmers. Affected birds have usually thrived well up to the age of about 12 to 14 weeks, when varying numbers go lame, show splayed or bowed legs, and sometimes enlarged or flattened hocks. Slipped tendons are rarely seen. The condition is progressive, until badly affected birds are unable to walk or reach food and water troughs. A few birds in severely affected flocks may also show twisted necks.

Despite the prevalence of these conditions, they do not appear to have been reported in the literature in this country, though they have been referred to at conferences. In the U.S.A. a number of conditions have been reported to affect the legs of growing turkeys and it is to the descriptions of the "Enlarged Hock Disorder" of Scott (1951) that observations in this country seem to be most closely related. Correspondence with numerous interested parties in the U.S.A. indicates that very much the same problem is being experienced in that country.

It has been usual in the past to regard such breakdowns in growing birds as the result of nutritional deficiencies, yet these conditions are increasing in incidence year by year despite improvements in the feeding of the birds.

Most of the research into these problems in the U.S.A. has concerned the effect of various constituents of the diet, and numerous factors—particularly choline, niacin and vitamin E—have been implicated. Various environmental factors have been blamed, notably the use of wire floors during brooding or later in life. It has also been suggested that some genetic strains, and different hatches from a breeding flock, may be more susceptible than others. Various drugs, including the antibiotics and an arsenical anti-blackhead drug, have been reported as beneficial. The only factor on which all observers are agreed is that it is always the heaviest birds—*i.e.* almost invariably the stags of a flock—which are most severely affected, so that it would seem that these conditions are, in part at least, related to weight-for-age.

In a recent survey on 60 turkey farms in this country, 75 per cent. admitted to having trouble with leg weakness to some degree, from farms where only a few birds were affected to others where almost 100 per cent. of some groups of birds were affected.

While feeding obviously plays a part in these conditions, no constant correlation with any dietary factor has yet been demonstrated in the field. Similarly, no breed or strain susceptibility has been demonstrated except that strains which produce good weights-for-age are more likely to be affected. There is, however, some indication that different hatches from a breeding flock may vary in their susceptibility.

Environmental factors and methods of brooding and housing—even the use of wire floors—would seem to be far less important in this connexion than we have thought previously. It is possible, however, that the avoidance of damp conditions underfoot may prove to be beneficial. The continuous feeding of an anti-blackhead drug has also been reported beneficial sufficiently frequently as to merit further investigation.

Ten out of 45 flocks affected with leg weakness also reported having experience of twisted necks in growing birds. This condition also affects the heaviest birds—*i.e.* the stags—and takes the form of a slowly progressive twisting and kinking of the neck, most commonly during the 13th to 16th weeks of age, by which time the head may have been rotated through 90° or more. It is likely that the aetiology of this condition is similar to that of leg weakness, and one may reasonably expect to encounter the two conditions side by side.

Investigations into these two problems of the turkey industry are continuing, and it is hoped that a more complete picture may be available after this year's growing season. I shall be grateful for details of any affected flocks during the coming year.

Yours faithfully,
NORMAN COMBEN.

Quaker Oats Limited,
Southall, Middlesex.
February 2nd, 1959.

Reference

SCOTT, M. L. (1951). *Poult. Sci.* **30**. 839.

Genital Radiography in the Bitch

Sir,—I have been most interested to read Mr. L. M. Cobb's excellent article on the radiographic technique for the investigation of genital disorders in the bitch. It may interest your readers to know that Skiodan sodium, which the author correctly attributes in a footnote to Winthrop Laboratories, Windsor, Ontario, is available in this country under the trade name "Perabrodil" Forte (Bayer Products Ltd.). The preparation is very well tolerated both locally and generally, although the rather rare cases of reactions to iodine due to idiosyncrasy must be borne in mind. It is contra-indicated in advanced renal disease with severe uraemia or serious heart disease.

Yours faithfully,
W. H. ALLAN.

Veterinary Division,
Bayer Products Ltd.,
Kingston-upon-Thames.
January 28th, 1959

ADVERTISER'S ANNOUNCEMENT

GLAXO LABORATORIES LTD., announce that a 30 ml. vial of Veterinary Cytamen "250" is now available on the home market.